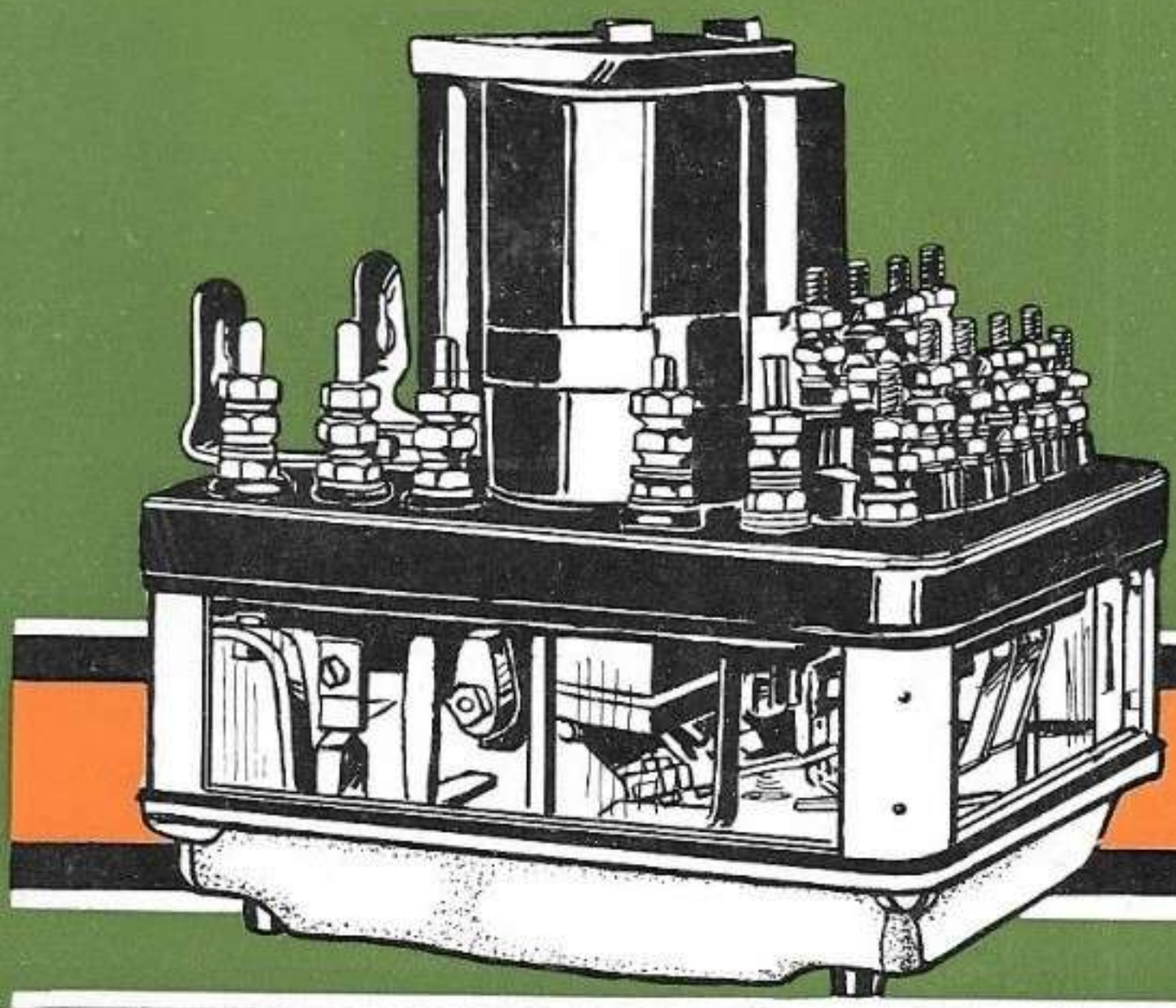


# UNION DP-14

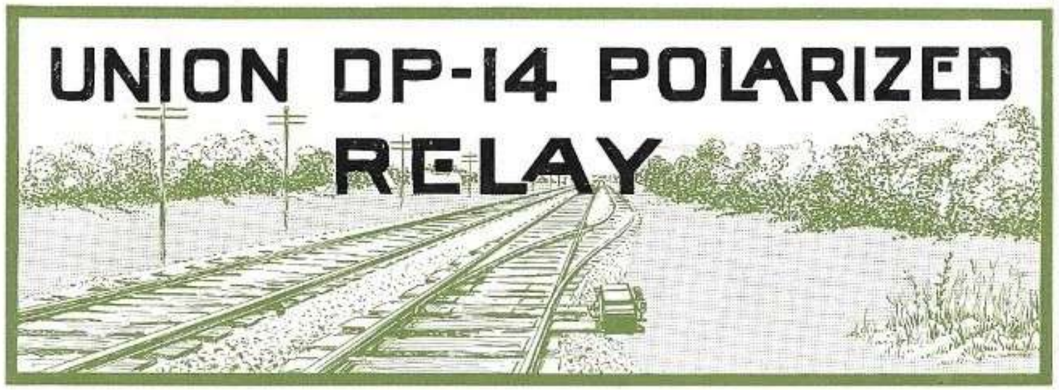
# POLARIZED RELAY

BULLETIN Nº 136

**Union Switch & Signal Co.**

Swissvale Pa.

# UNION DP-14 POLARIZED RELAY



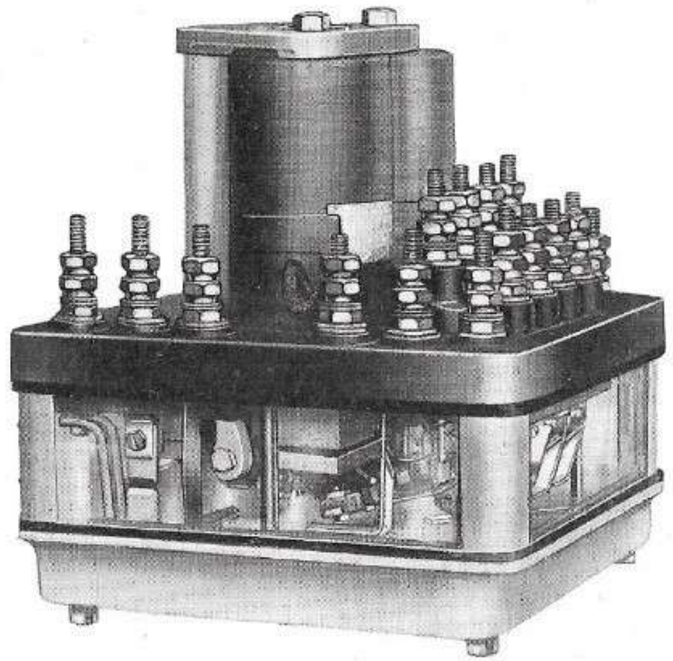
THE "Union" DP-14 Polarized Relay is one of the recent developments in the "Union" DN line of relays. Among the new features of this relay may be mentioned its simplicity of construction; a better calibration than has been obtained in polar relays up to the present, and a higher pressure on the polar contacts. It has a capacity of 4 front and 4 back non-independent neutral contacts and 2 normal and 2 reverse polar contacts.

## Some Important Advantages

Simplicity in the construction of this relay has been achieved by changes in the polar structure to permit the armature to rotate in a vertical plane, instead of a horizontal one. This feature permits larger clearance between the polar armature and the permanent magnet yoke and makes easier the inspection of the air gaps and pivots.

The change in the polar structure has resulted in another advantage: it has permitted the use of a uniform contact structure throughout. All of the contacts are equal in length and all operate in a vertical plane. The front neutral contacts are graphite-to-silver and the back neutral contacts silver-to-silver; the polar contacts are silver-to-graphite.

The permanent magnet in this relay has been increased in size. This gives several well-defined advantages, such as larger clearances between



**"Union" DP-14 Polarized Relay**

moving parts and also higher polar contact pressure, as a pressure of 2 oz. is maintained on all contacts. Another advantage which has been obtained by the increased size of the permanent magnet is that the polar armature stays in the position in which it was last energized and maintains full pressure on the polar contacts.

## The Calibration of the Relay

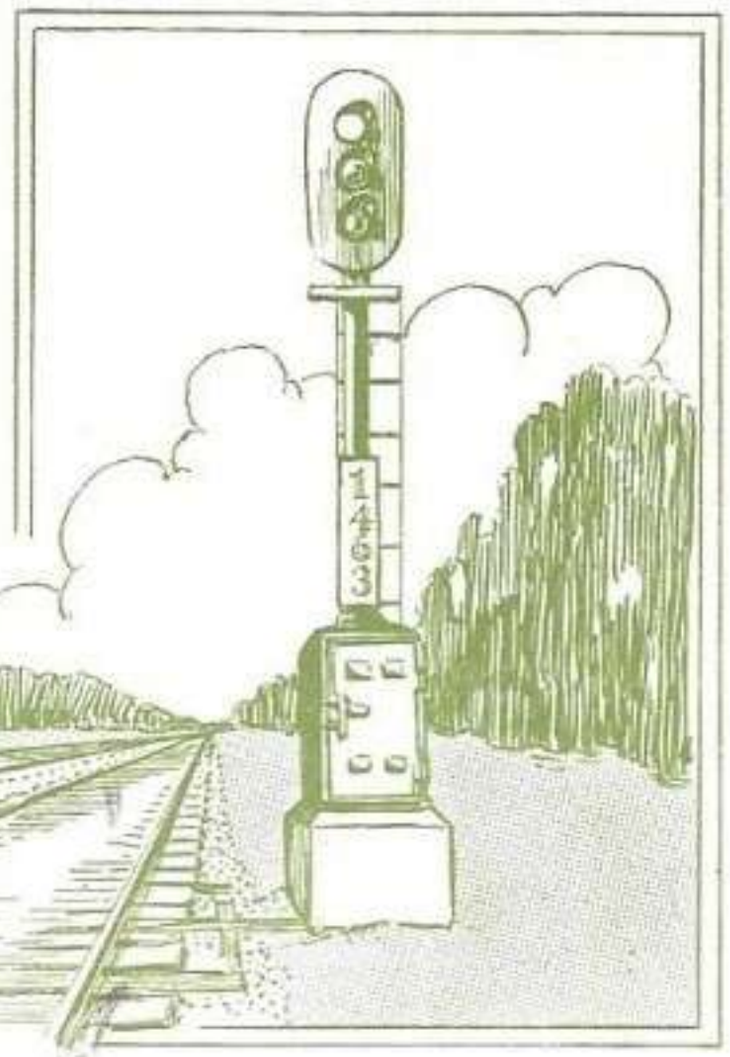
The calibration of this relay is another of its features, having been greatly improved over preceding ones. The 4-ohm relay is designed to give full contact pressure on a recommended working current about 70 per cent of that of former relays. Referred to the working current, pick-up occurs at about 90 per cent; release around 45 per cent and the polar armature will reverse on approximately 50 per cent of this value.

The following tabulation gives the calibration in detail for the 4-ohm relay:

| | |
|---|---|
| Working current | 0.100 amp. |
| Pick-up | 0.090 amp. |
| Release | 0.045 amp. |
| Polar armature reverses | 0.050 amp. |

## Interesting Construction Features

The "Union" DP-14 Polarized Relay is $7\frac{3}{8}$-in. by $7\frac{3}{4}$-in. by $8\frac{1}{2}$-in. and has the terminal post arrangement that is characteristic of all "Union" DN Relays. This improved arrangement, besides presenting a very neat appearance, adds materially to the strength of the top plate and facilitates making connections. It also provides an increase in the insulating surface between



binding posts and reduces the possibility of "crosses" correspondingly. The surface of the top plate about the binding posts has been raised thus insuring that there will be no leakage of water through it. The glass sides of the base structure afford good visibility of all working parts.

With this arrangement of terminal posts, it is extremely easy to trace circuits through the relay. The terminal posts are arranged in rows parallel to the sides of the top plate. They are easily identified and the connections from them to the contact fingers are logically arranged.

This relay has the V-type graphite and flat spring finger contacts that are standard on all DN relays. These contacts wear evenly and consequently eliminate the possibility of distortion. The design of the back contacts precludes the possibility of dirt collecting on the contact face and causing a failure of the relay. The contact springs are mounted on bakelite supports, are rigidly held and are well insulated. Articulated fingers with gauze contacts, providing an individual adjustment for each contact may be furnished when specified.

The high quality of workmanship and design, characteristic of all "Union" apparatus, is present, of course, in this relay. It is backed by the experience of nearly a half century in railway signaling.

## Ordering References for Style DP-14 Polarized Relays

Unless otherwise specified in the order, relays will be furnished with silver-to-graphite front contacts and silver-to-silver back contacts. Polar contacts are silver-to-graphite.

In ordering, please specify:

Resistance per pair of magnets.

Shelf or wall type mounting.

DP-14 Relays can be furnished in the following contact combinations:

| RELAY | FRONT CONTACTS | BACK CONTACTS | POLAR CONTACTS |
|---|---|---|---|
| 4 point | 4 | 2 | 2N & 2R |
| | 4 | 4 | 2N & 2R |

1881

1929

3½M-8-29-1

Printed in U.S.A.